Technical Issues Raised By CyberSecurity Policy

Sandy Merola

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Outline

- **DOE-wide community policies (directives)**
- **Minimizing the number of Future Poor Policies**
- **Policy can bring clarity to and motivate:**
  - **Protection, Detection, Reaction**
  - **associated technologies**
- **Deliverable for this session:**
  Identify CyberSecurity technologies motivated by Appropriate Policy
- **Deliverable for this workshop:**
  identify Technologies motivating DOE R&D

DOE-wide Community Policies

- Cyber Security Architecture
- 205.1 Unclassified Computer Security Program
- 205.2 Foreign National Access to Cyber Systems
- 205.3 Password Generation
- 206.1 Electronic Mail Analysis Capability
- 470.2 Independent Oversight and Performance Assurance
- CyberSecurity Performance Compliance checklist

Minimizing the number of Future Poor Policies

Improved cybersecurity practices, in the context of mission, should result in reduced motivation for half-baked policies, by:

- Reducing the overall risk to the enterprise
- Eliminating specific weaknesses for which reactive policies are sometimes instituted
- Improving ability to demonstrate cost/benefit approaches with agreement on acceptable risks
- Demonstrating Success via a joint policy/technology approach

(if the above is too optimistic,
we reaffirm our efforts to achieve valued-added policies,
but not generate technology to support poor policy)

Guidelines For Good Policy

Good Policy

- Is Driven by mission
- Is inherent to a prudent cybersecurity program
- Results from identified specific threats/vulnerabilities and a cost/benefit approach to reduce risk
- Is driver for and a partner with Technology
- Is thin but durable, specifying outcomes
- Implementation can be verified
- Is understood, in motivation and implementation, by those who must comply with them

Connecting research funding to DOE needed policies helps motivate/secure funding

Policy driving Technology

Protection:
- Authentication
- Configuration Management
- Firewalls, VPN
- Filtering

Detection:
- Host Based intrusion detection
- Network Based intrusion detection
- Electronic Mail Analysis Capability

Response:
- Incident Response
- Activity blocking
- Disaster Planning
- Incident Reporting & Evidence Collection
- Forensics, Secure Auditing

Needed Interactions between policies and technologists

1. **Develop Security Models that support widely distributed HPC/HPN**
   - **for both open and less-open collaboration**
   - **within individual sites and across the enterprise**
2. **Design and Build Security into Systems**
3. **Develop Evaluation Criteria for Cyber Products**
4. **Develop Metrics of Success for CyberSecurity Programs**
5. **Develop policies and technolgies that consider the human factor**
6. **Utilize Test Beds**

Open Discussion

DOE scientific programs require cybersecurity policies –
these motivate a Technological response.

Some Technologies –
we can and will just buy and use.

Other DOE Requirements motivate DOE R&D, as
- **we need them earlier than general community**
- **we have unique requirements (HPC, HPN, distributed resources and scientists)**
- **as good citizens, we must contribute to the Internet community**